FOMA® D702iBCL

Manual for Data Communication

Data communication 1
Flow of setup for data communication 2
Connecting PC to FOMA terminal 3
Installation of the communication configuration file (driver) 4
Communicating using the FOMA PC configuration software 5
Communicating without using the FOMA PC configuration software 15
AT command 23

■ **About Manual for Data Communication**

In this manual, the important items, which are needed for data communication by FOMA D702iBCL and the method of installing "communication configuration file (driver) for D702iBCL" and "FOMA PC configuration software" are explained.

■ **Operations for Windows**

In this manual, the contents correspond to Windows XP Service Pack 2.
A part of the operations or screens may differ, depending on the environment.

Data communication

The data communication modes available from FOMA terminal and hints on use are explained.

- FOMA terminal does not support the Remote Wakeup.
- FOMA terminal does not support fax communication.
- When connecting FOMA terminal to DoCoMo's PDA "sigmarion Ⅱ" or "musea" for data communication, make sure to update "sigmarion Ⅱ" or "musea". For details on update, visit the DoCoMo website.

Supported communication modes

FOMA terminal supports 3 communication modes: packet communication, 64K data communication and data transfer.
These communications become available by installing the related software onto a PC from the attached CD-ROM, connecting FOMA terminal to the PC and making required settings.

■ Packet communication

Packet communication charges are based on the amount of data sent and received, which make it suitable for high-speed exchange of relatively small amounts of data such as sending and receiving mail. No communication charges are required when no data are exchanged even if you are connected to the network. Therefore, sending/receiving data as needed while remaining connected to the network is possible.
High-speed packet communication provides a maximum reception speed of 384 kbps and a maximum transmission speed of 64 kbps by using access points that support packet communication on FOMA, such as Docomo's "mopera U/mopera" Internet connection service. These are offered by Best-effort connection which allows transmission speed to vary with the environment and the rate of congestion.
Note that communications of large-size data such as for viewing and downloading websites containing images will require high charges.

■ 64K data communication

The 64K data communications allow data transfer/reception at stabled communication rate of 64 kbps. Communication charges are based on the duration of the connection to the network regardless of the volume of data, which make it suitable for sending and receiving relatively large amounts of data as in downloading multi-media contents. You need to use access points that support FOMA 64K data communication such as Docomo's "mopera U/mopera" Internet connection service or ISDN synchronized 64 kbps access points.
Note that communicating for long time will require high charges.

■ Data transfer

It is the mode of non-charged communication in which data are transferred/exchanged via FOMA USB cable (optional). Various data including the phonebook, incoming/outgoing mail and bookmarks are sent/received.

Usage precautions

Internet service provider usage charge

When using the Internet from PC, usage charge to your Internet service provider (hereinafter called provider) is generally required. This charge is paid directly to the provider, and is separate from the FOMA service charge. For more information on usage charges, contact your provider.

- DoCoMo provides 2 Internet connection services: mopera U and mopera.
  The mopera U service requires subscription and a monthly fee. It allows you to use broadband Internet connection and international roaming services. There is also a plan that requires a monthly fee only when you use the service.
  The mopera service, allows you to access the Internet without subscription and monthly fee. You can make a connection with Internet immediately.
  For details such as on charges, visit the DoCoMo website.

Setting the dialup connection (provider, etc.)

Different dialup connections are required for packet communication and 64K data communication. When performing packet communication, use the dialup connection for FOMA packet communication. When performing 64K data communication, use the dialup connection for FOMA 64 kbps data communication or ISDN synchronized 64 kbps data communication.

- You cannot connect to access points of PHS 64K/32K data communication such as PIAFS or DoPa.

User authentication during network access

Some dialup connections require user authentication (ID and password) before a connection can be established. If user authentication is required, you must use your communication software or dialup network to enter your ID and password before connection. Your ID and password will be assigned by the provider or network administrator such as in-house LAN, etc. For more information, contact your provider or network administrator.

Next

Access authentication when using PC browser

To authenticate FirstPass (user certificate), you must install FirstPass PC software from the attached CD-ROM and configure it. For details, see "FirstPassManual" in the CD-ROM.
To view "FirstPassManual" (PDF format), Adobe Reader (version 6.0 or later recommended) is required. If Adobe Reader is not installed in your PC, you need to download the latest version from the Adobe Systems Incorporated website (Communication fee is separately required for downloading). For details, see the Adobe Systems Incorporated website.

■ Operating environment for the FirstPass PC software

Item	Requirements
PC	PC/AT compatible computer
OS	The Japanese version of Windows 2000 or XP
Memory requirements*1	Windows 2000: 32MB or more Windows XP: 128MB or more
Hard disk capacity*1	10 MB or more free disk space
Browser	Microsoft® Internet Explorer 5.5 and later version For Windows XP, Microsoft® Internet Explorer 6.0 and later version

*1 May vary with the PC system configurations.

Conditions of packet communication and 64K data communication

To perform data communication from FOMA terminal, the following conditions must be satisfied.

- The PCs which may use a FOMA USB cable (optional).
- You must be within the FOMA service area.
- Packet communication requires an access point that supports FOMA packet communications.
- 64K data communication requires an access point that supports FOMA 64 kbps or ISDN synchronized 64 kbps data communication.

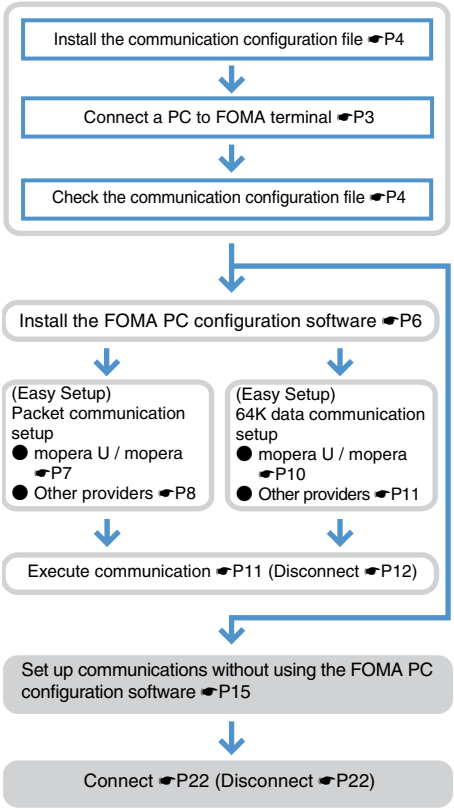
However, even when the above requirements are satisfied, you may not be able to perform data communication if base station traffic is heavy, or the signal quality is poor.

Glossary of Data communication

- Administrator privilege
  A user level that provides complete access to all OS functions in Windows XP and 2000. There must be at least one user that has administrator privileges for each PC. A user that has no administrator privileges is not normally allowed to install/uninstall drivers and software.
- APN (Access Point Name)
  String to identify a provider, etc. to connect by packet communication. The APN for mopera U is "mopera.net" and mopera is "mopera.ne.jp".
- cid (Context Identifier)
  The registration number when writing packet communication dialup connection (APN) information to FOMA terminal. 10 numbers from 1 to 10 are available for FOMA terminal.
  By default, "mopera.ne.jp" is registered in cid1, and "mopera.net" in cid3.
- W-TCP
  A TCP parameter designed to fully utilize TCP/IP transmission capacity during packet communications in a FOMA network. This communication setting is essential to enable full use of FOMA terminal capability.

Flow of setup for data communication

The setup work needed to connect FOMA terminal to a PC to perform packet or 64K data communication is as follows:


Install the communication configuration file ☛P4
Connect a PC to FOMA terminal ☛P3
Check the communication configuration file ☛P4
Install the FOMA PC configuration software ☛P6
(Easy Setup)
Packet communication setup
● mopera U / mopera ☛P7
● Other providers ☛P8
(Easy Setup)
64K data communication setup
● mopera U / mopera ☛P10
● Other providers ☛P11
Execute communication ☛P11 (Disconnect ☛P12)
Set up communications without using the FOMA PC configuration software ☛P15
Connect ☛P22 (Disconnect ☛P22)

Communication configuration file (driver)

Install the communication configuration file on a PC from the attached CD-ROM, before connecting FOMA terminal to a PC to perform data communication.

FOMA PC configuration software

When the FOMA PC configuration software (found on the CD-ROM) is installed on a PC, a number of settings required for data communication via connection between FOMA terminal and PC can be made from the PC by simple operation.

Checking operating environment

Use the communication configuration file and the FOMA PC configuration software in the following operating environments:

Item	Requirements
PC*1	PC/AT compatible computer
OS*2	The Japanese version of Windows 2000 or XP
Memory requirements	Windows 2000: 64MB or more Windows XP: 128MB or more
Hard disk capacity	5 MB or more free disk space

*1 USB port (conform to USB specification 1.1/2.0) is required.

*2 The operation form OS upgrading is not covered by the warranty.

INFORMATION

- Note that utilization may not be possible in certain operating environments. Furthermore, operation will not be guaranteed in an environment other than that described above or by upgrading the OS and DoCoMo assumes no responsibility for operation under such conditions.

Before installation/uninstallation

- Installing and uninstalling the communication configuration file or the FOMA PC configuration software under Windows XP or 2000 can only be performed by a user with administrator privileges. Attempts made by other users will result in errors. For details on PC administrator privileges, refer to the instruction manual of the PC or contact your PC manufacturer or Microsoft Corporation.
- Before starting operation, make sure that no other program is running. If there is any active program, save and exit the program before operation.

Connecting PC to FOMA terminal

The connection should be made with the PC and FOMA terminal both switched on.

- Be sure to install the communication configuration file (driver) before connecting with a PC. ☛P4

Connecting a PC

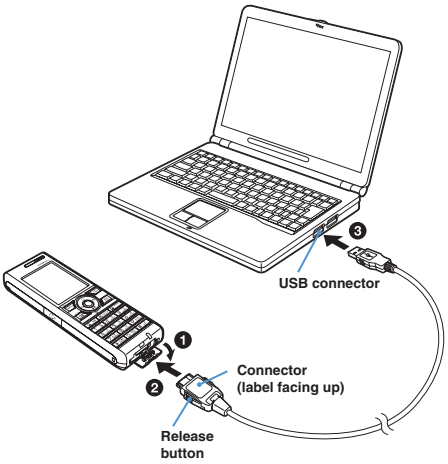
Connect by using the FOMA USB cable (optional).

❶Open the cap on the FOMA terminal's external connection terminal

❷Insert one end of the FOMA USB cable into the FOMA terminal's external connection terminal until it clicks

❸Insert the other end of the FOMA USB cable into the PC USB connector

- When a PC and FOMA terminal are connected, appears on the display of FOMA terminal.
- If you connect FOMA terminal to a PC before installing the communication configuration file, Windows may automatically detect that a FOMA USB cable has been inserted, request to install a driver, and the wizard screen will be displayed. In that case, remove FOMA terminal and click *キャンセル* (Cancel) to exit the wizard.



■ Removing FOMA USB cable

Press release buttons on both sides of the connector for FOMA terminal and pull it out. Pull the connector for PC out from the side of PC.

- Be sure to press release buttons on both sides of the connector and pull it out from FOMA terminal horizontally. Forcing to pull it out may cause a malfunction.

Next

Connecting while charging

FOMA terminal can be connected using a desktop holder (optional) during the charging. However, charging time becomes longer.

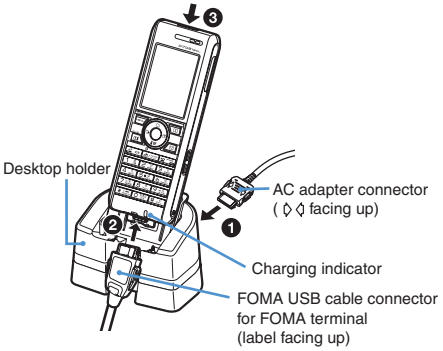
❶Connect the desktop holder to the AC adapter

- Plug the AC adapter into the wall outlet

❷Connect FOMA terminal and FOMA USB cable

❸Along with the desktop holder, insert FOMA terminal at an angle as shown in the figure

- Pull out the FOMA USB cable in front of the desktop holder, when inserting FOMA terminal.
- Check that the charging indicator lights in red.



INFORMATION

- FOMA terminal can be connected by using a data communication adapter D01(optional), while charging. However, charging time becomes longer.
- Do not remove the FOMA USB cable during data communication, or give shock to FOMA terminal and desktop holder. It may cause the interruption of charging or data communication, malfunction or failure of PC or FOMA terminal, or loss of data.
- Starting to charge during data communication may not complete charging. To complete charging, it is recommended that you end the data communication first, and then start charging.

Installation of the communication configuration file (driver)

Install the communication configuration file onto a PC before connecting FOMA terminal to the PC to perform communication.

Installing the communication configuration file

Before operation, read “Before installation/uninstallation” ☛P3

- Perform Steps 1 to 3 first, and then connect FOMA terminal to a PC.

Example For Windows XP

1 Insert the attached CD-ROM into a PC

2 Click *スタート*(Start) and *ファイル名を指定して実行*(Run) ▶ Enter “<CD-ROM drive letter>:¥USBDRIVE¥D702iBCi.exe” in *名前*(Name) ▶ Click *OK*

3 Click *インストール開始*(Start installation)

A screen requesting to connect FOMA D702iBCL to the PC appears.

4 Connect FOMA terminal to the PC

A progress screen for installation appears and automatically completed, then the message appears.

- Connect FOMA terminal while the power is on.

5 Click *OK*

- Go to “Checking the communication configuration file”, and check the type and name of the device installed.

INFORMATION

- Installation may take a few minutes.
- When Windows rebooting is prompted on the screen, follow the instruction and reboot.
- If a PC and FOMA terminal are connected before the communication configuration file is installed, another driver may be automatically installed. When this happens, performing the operation in Step 2 displays a message saying that the installed driver must be uninstalled. In this case, uninstall the driver following instruction shown on the display and install the communication configuration file.

Checking the communication configuration file

When the PC does not detect FOMA terminal correctly, settings and communication cannot be performed.

Next

Example For Windows XP

1 Click *スタート*, *コントロールパネル* (Control Panel), the *パフォーマンスとメンテナンス* (Performance and maintenance) icon and the *システム* (System) icon

The *システムのプロパティ* (System properties) screen appears.

■ **For Windows 2000:**

① **Click *スタート*, *設定* (Setting) and *コントロールパネル***

② **Double-click the *システム* icon**

2 Click the *ハードウェア* (Hardware) tab ▶ Click *デバイスマネージャ* (Device manager)

The *デバイスマネージャ* screen appears.

3 Double-click a type of each device ▶ Check the name of the installed device

Check that all the names of installed devices are shown.

Device type	Device name
USB (Universal Serial Bus) Controller	*FOMA D702iBCL*
Port (COM and LPT)	• *FOMA D702iBCL Command Port (COMx)**1 • *FOMA D702iBCL OBEX Port (COMx)**1
Modem	*FOMA D702iBCL*

*1 "x" of *COMx* varies by PC to be used.

Uninstalling the communication configuration file

Before operation, read "Before installation/uninstallation" ☛P3

Before uninstalling, make sure that FOMA terminal is removed from the PC.

Example For Windows XP

1 Click *スタート*, *コントロールパネル* and the *プログラムの追加と削除* (Add/delete Programs) icon

The *プログラムの追加と削除* screen appears.

■ **For Windows 2000:**

① **Click *スタート*, *設定* and *コントロールパネル***

② **Double-click the *アプリケーションの追加と削除* (Add/delete applications) icon**

2 Select *FOMA D702iBCL USB* ▶ Click *変更と削除* (Update/delete)

3 Check the name of program and click *はい*

The uninstall process of the configuration software starts.

4 Click *OK*

INFORMATION

● When the installation fails or ***FOMA D702iBCL USB*** is not displayed on the screen of *プログラムの追加と削除*, insert the attached CD-ROM into the PC, click *スタート*, and *ファイル名を指定して実行*.

Then enter "<CD-ROM drive letter>:¥USBDRIVE¥D702iBCi.exe" and click ***OK*** to execute directly and uninstall the communication configuration file.

Communicating using the FOMA PC configuration software

A number of settings are required when FOMA terminal is connected to a PC to perform packet communication or 64K data communication. The FOMA PC configuration software allows you to easily perform the following settings:

■ **Easy setup**

Creating a dialup connection for FOMA data communication and W-TCP setup can be performed automatically by following the instructions in the guide.

■ **W-TCP setup**

This function optimizes the settings in the PC required for FOMA packet communication. Optimization of the communication settings using W-TCP setup is required to enable communication capability to maximum extent.

■ **Dialup connection (APN) setup**

This function performs the dialup connection (APN) setup required for packet communication. Unlike 64K data communication, phone numbers cannot be used as a dialup connection for FOMA packet communication. Set a dialup connection name called APN in FOMA terminal for each dialup connection in advance, and enter the registration number (cid) in the phone number field of dialup connection. By default, "mopera.ne.jp" (APN) is registered in cid 1 to connect to mopera, and "mopera.net" (APN) for cid 3 to connect to mopera U, but the APN for connections to other providers and in-house LAN must be set.

Installing the FOMA PC configuration software

- Uninstall an old version of the FOMA PC configuration software (version 1.00 or 2.00), if already installed, before installing the FOMA PC configuration software (version 2.0.1) from the attached CD-ROM. You can display the version from *メニュー* (Menu) →*バージョン情報* (Version information) of the FOMA PC configuration software.
- If the following software (provided with the FOMA model released before this time's) are installed, uninstall them in advance:
  - ・W-TCP environment configuration software (hereinafter called "old W-TCP configuration software")
  - ・FOMA data communication configuration software (hereinafter called "old FOMA data communication configuration software")
- Before operation, read "Before installation/ uninstallation" ☛P3

Example For Windows XP

1 Insert the attached CD-ROM into the PC

2 Click *スタート* and *ファイル名を指定して実行* ▶ Enter "<CD-ROM drive letter>: ¥FOMA_PCSET¥setup.exe" in *名前* ▶ Click *OK*

3 Click *次へ* (Next)

The FOMA PC configuration software license agreement appears.

4 Read the content of the screen and click *はい* if you agree to the agreement

5 Check that *タスクトレイに常駐する* (Reside in task tray) is selected and click *次へ*

W-TCP 設定 (W-TCP setup) resides in the task tray after the setup.

- This is recommended for setting and cancellation of W-TCP communication. (☛P13)
- You can change the setting of resident software after the installation.

6 Check the installation path and click *次へ*

7 Check the name of the program folder and click *次へ*

8 Click *完了* (Done)

FOMA PC 設定ソフト (FOMA PC configuration software) is started up.

- Settings can be started from this screen.

INFORMATION

- If the FOMA PC configuration software, old W-TCP configuration software, or old FOMA data communication configuration software is already installed, the screen to cancel the installation appears. Click *OK* to uninstall this software and then install the FOMA PC configuration software.
- When *キャンセル* or *いいえ* (No) is clicked during installation, the confirmation screen to cancel the installation appears. To continue the installation, click *いいえ*. To cancel, click *はい* and *完了*.

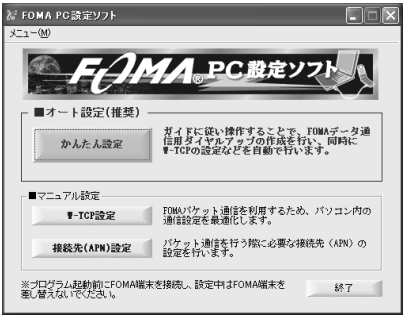
Setting packet communication by easy setup

Before setup, make sure that FOMA terminal and the PC are properly connected. ☛P3

Example For Windows XP

1 Click *スタート*, *すべてのプログラム* (All programs) (*プログラム* (Programs) for Windows 2000), *FOMA PC設定ソフト* and *FOMA PC設定ソフト*

The FOMA PC configuration software is started up.



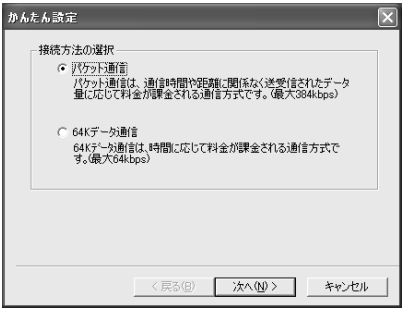
Using mopera U / mopera

• Using other providers ☛P8

Example For Windows XP

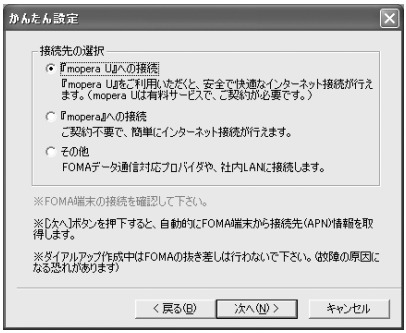
1 Start the FOMA PC configuration software ▶ Click *かんたん設定* (Easy setup)

2 Select *パケット通信* (Packet communication) ▶ Click *次へ*



3 Select *『mopera U』への接続* (mopera U connection) or *『mopera』への接続* (mopera connection) ▶ Click *次へ*

- DoCoMo provides 2 Internet connection services: mopera U and mopera. The mopera U service requires subscription and a monthly fee. The mopera service requires no subscription and a monthly fee.
- When mopera U is selected, a confirmation message to agreement appears. If the subscription is completed, click *はい*.



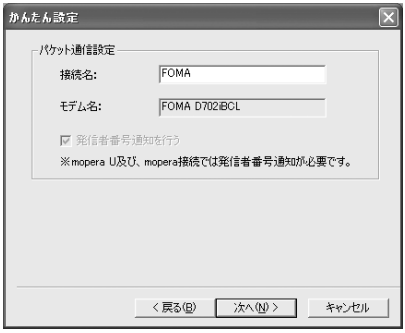
4 Click *OK* on the *FOMA端末設定取得* (Get FOMA terminal settings) screen

接続先(APN)情報 (Dialup connection (APN) information) is obtained from FOMA terminal. Please wait.

5 Enter any connection name ▶ Click *次へ*

- The following one-byte characters cannot be entered:

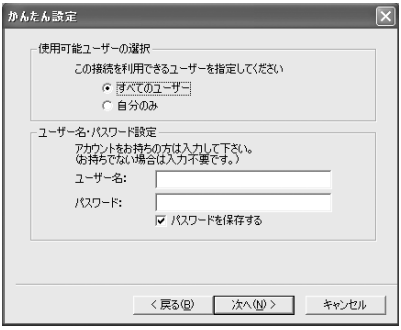
  ¥ / : * ? ! <> | "



Next

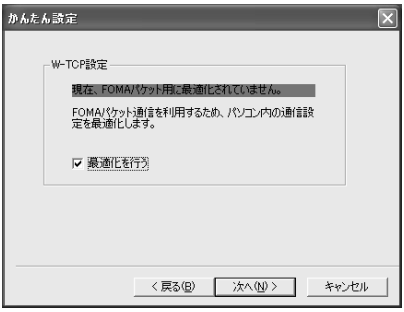
6 Click *次へ*

- The entry for *ユーザー名* (User name) or *パスワード* (Password) is not required for connection.
- If you select *すべてのユーザー* (All users) for *使用可能ユーザーの選択* (Select allowable user), all users that are allowed to logon to Windows can access the connection.

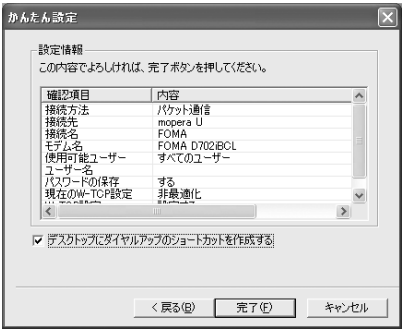


7 Check that *最適化を行う* (Optimize) is selected and click *次へ*

- This screen is not displayed if optimization has already been performed.



8 Check the settings and click *完了*



9 Click *OK*

The PC must be rebooted for the changes to take effect. Click *はい* when a window prompts you to reboot the PC.

- If optimization of W-TCP setting has already been performed, rebooting is not required.
- Performing communication ☛P11

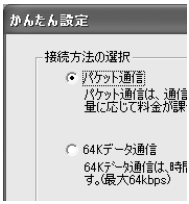
Using other providers

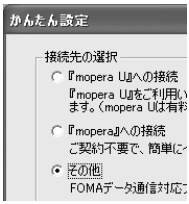
- Using mopera U / mopera ☛P7

Example For Windows XP

1 Perform Steps 1 to 4 of "Using mopera U / mopera" of "Setting packet communication by easy setup" ☛P7

- Select *その他* (Others) in Step 3 for the dialup connection.





2 Enter any connection name ▶ Click *接続先 (APN) 設定* (Set dialup connection (APN))

- The following one-byte characters cannot be entered:

¥ / : * ? ! <> | "

■ **Advanced setting (TCP/IP setting):**
Click *詳細情報の設定* (Set detail info) to display the *IPアドレス* (IP address) and *ネームサーバー* (Name server) setting screens. When dialup information is required, register such as addresses based on the information assigned by the provider, etc.

Next

3 Set the dialup connection (APN)

By default, “mopera.ne.jp” is registered in cid1, and “mopera.net” in cid3. Register a dialup connection (APN) for cid 2 or 4 to 10.

① **Click *追加* (Add)**

The *接続先 (APN) の追加* (Add dialup connection (APN)) screen appears.

② **In *接続先 (APN)*, correctly enter a dialup connection name (APN) of your provider, etc., which supports the FOMA packet communication ▶ Click *OK***

The display returns to the *接続先 (APN) 設定* screen.

- Only one-byte alphanumeric characters, hyphens (-) and periods (.) can be entered for *接続先(APN)*.

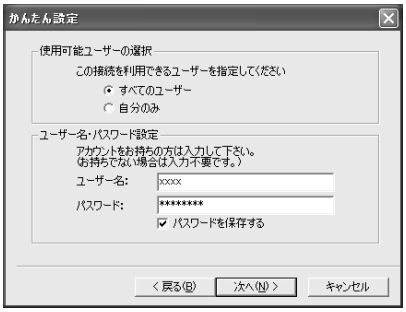
4 Click *OK*

The display returns to the screen in Step 2. *接続先 (APN)* set in Step 3 appears in *接続先(APN) の選択* (Select dialup connection (APN)).

5 Check the dialup connection name (APN) of *接続先 (APN)の選択* and click *次へ*

6 Enter the user name in *ユーザー名* and the password in *パスワード*▶ Click *次へ*

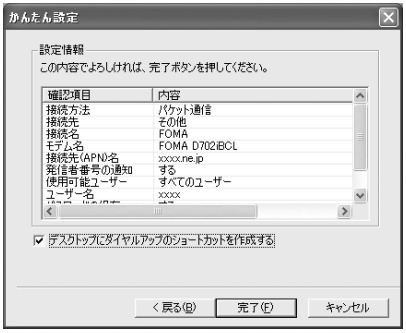
- Enter the user name and password assigned by the provider, etc., correctly. Be careful about the upper/lower case of each character.
- If you select *すべてのユーザー* for *使用可能ユーザーの選択*, all users that are allowed to logon to Windows can access the connection.



7 Check that *最適化を行う* is selected and click *次へ*

- This screen is not displayed if optimization has already been performed.

8 Check the settings and click *完了*



9 Click *OK*

The PC must be rebooted for the changes to take effect. Click *はい* when a window prompts you to reboot the PC.

- If optimization of W-TCP setting has already been performed, rebooting is not required.
- Performing communication ☛P11

Setting 64K data communication by easy setup

Before setup, make sure that FOMA terminal and the PC are properly connected. ☛P3

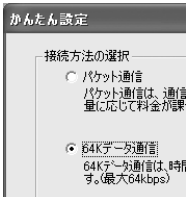
Using mopera U / mopera

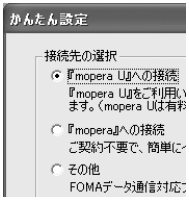
- Using other providers ☛P11

Example For Windows XP

1 Perform Steps 1 to 3 of "Using mopera U / mopera" of "Setting packet communication by easy setup" ☛P7

- Select *64K データ通信* (64K data communication) in Step 2 for the communication procedure.



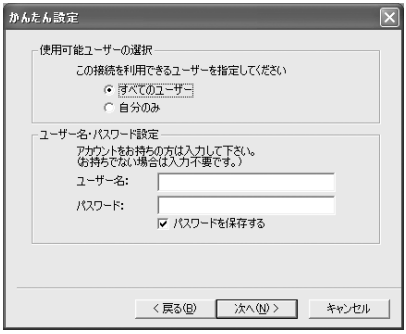


2 Enter any connection name and select the modem ▶ Click *次へ*

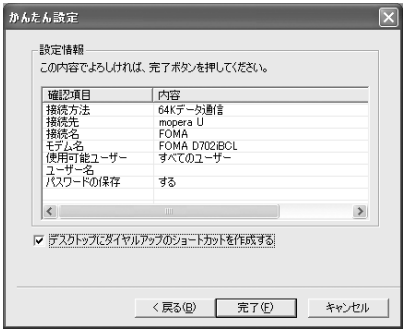
- The following one-byte characters cannot be entered:
  ¥ / : * ? ! <> | "
- Check that ***FOMA D702iBCL*** is set for *モデムの選択* (Modem selection).

3 Click *次へ*

- The entry for *ユーザー名* or *パスワード* is not required for connecting.
- If you select *すべてのユーザー* for *使用可能ユーザーの選択*, all users that are allowed to logon to Windows can access the connection.



4 Check the settings and click *完了*



5 Click *OK*

- Performing communication ☛P11

Next

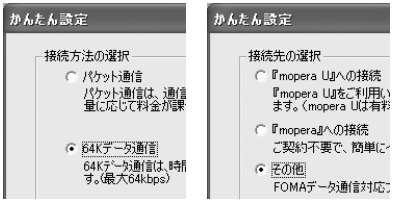
Using other providers

- Using mopera U / mopera ☛P10

Example For Windows XP

1 Perform Steps 1 to 3 of "Using mopera U / mopera" of "Setting packet communication by easy setup" ☛P7

- Select *64K データ通信* in Step 2 for the communication procedure, and *その他* in Step 3 for the dialup connection.



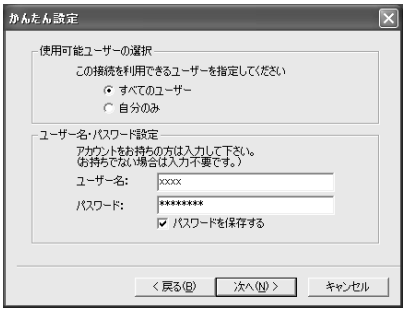
2 Set each item ▶ Click *次へ*

- Register the following items:
  - ・*接続名* : Optional
  - ・*モデムの選択* : FOMA D702iBCL
  - ・*電話番号* (Phone number)
    : Enter based on information given by provider, etc.

■ **Advanced setting (TCP/IP setting):**
Click *詳細情報の設定* to display the *IPアドレス* and *ネームサーバー* setting screens. When dialup information is required, register such as addresses based on the information assigned by the provider, etc.

3 Enter the user name in *ユーザー名* and the password in *パスワード* ▶ Click *次へ*

- Enter the user name or password assigned by the provider, etc. correctly. Be careful about the upper/lower case of each character.
- If you select *すべてのユーザー* for *使用可能ユーザーの選択*, all users that are allowed to logon to Windows can access the connection.



4 Check the settings and click *完了*

5 Click *OK*

- Performing communication ☛P11

Performing communication

Starting communication set with the FOMA PC configuration software and disconnection are explained here.

Example For Windows XP

1 Connect FOMA terminal to a PC ☛P3

2 Double-click the connection icon on the desktop

- The icon varies depending on the OS.

Next

• When there is no connection icon made on desktop, start from the *スタート* menu.

■ **Starting from the *スタート* menu of Windows XP:**

① Click *スタート*, *すべてのプログラム*, *アクセサリ* (Accessories), *通信* (Communication), and *ネットワーク接続* (Network connection)

② Double-click the connection icon

■ **Starting from the *スタート* menu of Windows 2000:**

① Click *スタート*, *プログラム*, *アクセサリ*, *通信* and *ネットワークとダイヤルアップ接続* (Network and dialup connections)

② Double-click the connection icon

3 Check each item and click *ダイヤル* (Dial)

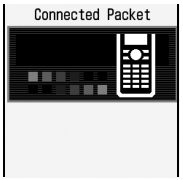
• When mopera U / mopera is selected, the entry for *ユーザー名* or *パスワード* is not required for connection.

• If required by the instructions of a subscribed provider, enter the user name and the password, and then click *ダイヤル* according to the input instruction information.

• The connection established screen may be displayed depending on the OS. Click ***OK***.

■ **FOMA terminal screen while communicating**

FOMA terminal displays a connecting screen when you execute packet or 64K data communication. The following screens are displayed when a connection has been established:



INFORMATION

● The transmission speed displayed on your PC may differ from actual speed.

● Data transmission is available only with FOMA terminal that was connected when the connection icon was created.

● When connecting FOMA terminal other than D702iBCL, installation of the communication configuration file for your FOMA terminal is needed.

Disconnecting communication

Just exiting the browser may not disconnect the connection. To ensure disconnection, perform the following operation:

Example For Windows XP

1 Click in the task tray

2 Click *切断* (Disconnect)

Optimizing packet communication setup

The method of optimizing the PC packet communication setup for FOMA network by means of W-TCP setup and canceling optimization is explained here.
The W-TCP setup is a TCP parameter tuning tool for optimizing TCP/IP transmission capacity during packet communication in the FOMA network. To enable communication capability of FOMA terminal to maximum extent, this communication setup is required.

For Windows XP

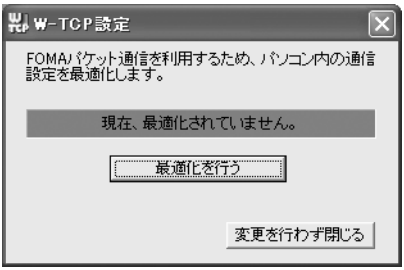
System optimization can be performed for each dialup connection.

1 Start *FOMA PC 設定ソフト*(☛P7) ▶ Click *W-TCP 設定*

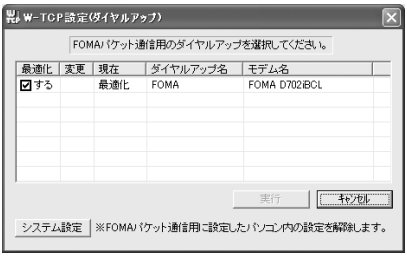
■ **Starting from the task tray: Click**

2 Perform the following:

■ **When the system has not been optimized:**
① **Click *最適化を行う* on the W-TCP setting screen**
② **Select the dialup connection to be optimized ▶ Click *実行* (Execute)**
Optimization of the system settings and dialup settings are performed respectively.



■ **When the system has been optimized:**
The following screen is displayed. Make the required settings if changes are to be made.



■ **Deactivating optimization:**
① **Click *システム設定* (System setting) in the *W-TCP設定(ダイヤルアップ)* (Set W-TCP (dialup)) screen**
The W-TCP setting screen appears.
② **Click *最適化を解除する* (Deactivate optimization)**

3 Reboot the PC, following the instruction shown on the screen

• The settings take effect after rebooting the PC.

Under Windows 2000

1 Start *FOMA PC 設定ソフト*(☛P7) ▶ Click *W-TCP 設定*

■ **Starting from the task tray: Click**

2 Perform the following:

■ **When the system setting has not been optimized: Click *最適化を行う***

■ **When canceling optimization of the system setting: Click *最適化を解除する***

3 Reboot the PC, following the instruction shown on the screen

• The settings take effect after rebooting the PC.

Setting dialup connections (APNs)

Set the dialup connection (APN) for packet communication.
Up to 10 dialup connections (APNs) can be set, which are to be registered under registration numbers (cid) 1 to 10 for management.
By default, “mopera.ne.jp” is set for cid1 and “mopera.net” for cid3.

• Before setup, make sure that FOMA terminal and the PC are properly connected. ☛P3
• For dialup connections (APNs) other than mopera U / mopera, inquire your provider or network administrator.

Example For Windows XP

1 Start *FOMA PC 設定ソフト* (☛P7) ▶ Click *接続先 (APN) 設定*

The *FOMA 端末設定取得* screen appears.

2 Click *OK*

FOMA terminal is accessed for reading the registered dialup connection (APN) information.

Next

3 Make the dialup connection (APN) settings

■ **Adding dialup connections (APNs): Click** *追加*

■ **Editing or correcting registered dialup connections (APNs): Select the dialup connection (APN) from the list ▶ Click** *編集* **(Edit)**

■ **Deleting the registered dialup connection (APN): Select the dialup connection (APN) from the list ▶ Click** *削除* **(Delete)**

- The dialup connection registered in cid1 and cid3 cannot be deleted. (Selecting cid3 and clicking *削除* do not actually delete, but return to "mopera.net".)

■ **Saving settings as file: Click** *ファイル* **(File) and** *名前を付けて保存* **(Save as...) or** *上書き保存* **(Overwrite)**

- Save the settings as a file to back up the dialup connection (APN) settings registered in FOMA terminal or save the dialup connection (APN) settings during editing.

■ **Importing settings from file: Click** *ファイル* **and** *開く* **(Open)**

- Import settings from a file to edit dialup connections (APNs) saved on the PC or write to FOMA terminal.

■ **Importing dialup connection (APN) information from FOMA terminal: Click** *ファイル* **and** *FOMA 端末から設定を取得* **(Import settings from FOMA terminal)**

Access manually to FOMA terminal to import the registered dialup connection (APN) settings.

■ **Writing dialup connection (APN) information to FOMA terminal: Click** *FOMA 端末へ設定を書き込む* **(Write settings to FOMA terminal)**

The displayed dialup connection (APN) settings are written to FOMA terminal.

■ **Creating dialup connections:**

① **Select an added or edited dialup connection (APN) ▶ Click** *ダイヤルアップ作成* **(Create dialup connection)**

The *FOMA 端末設定書き込み* (Write setting to FOMA terminal) screen appears.

② **Click** *はい* **▶ Click** *OK*

When the dialup connection (APN) information have been written to FOMA terminal,the *パケット通信用ダイヤルアップの作成* (Create dialup connection for packet communication) screen appears.

③ **Enter any connection name ▶ Click** *アカウント・パスワードの設定* **(Set account and password)**

④ **Enter the user name in** *ユーザー名* **and the password in** *パスワード* **▶ Click** *OK*

- Not required for mopera U / mopera for connection.
- If you select *すべてのユーザー* for *使用可能ユーザーの選択*, all users that are allowed to logon to Windows can access the connection.
- Some providers, etc., may request you to enter IP and DNS information settings. Should this be the case, click *詳細情報の設定* in the *パケット通信用ダイヤルアップの作成* screen, register the required information and click *OK*.

⑤ **Click** *OK* **▶ Click** *OK*

⑥ **Click** *FOMA 端末へ設定を書き込む*

A confirmation screen appears asking whether to overwrite.

⑦ **Click** *はい* **▶ Click** *OK*

INFORMATION

● Since the dialup connection (APN) setting is information saved in FOMA terminal, re-register the APN when connecting another FOMA terminal (terminal replaced by repair, etc.).

● To continue to use the dialup connection (APN) saved in the PC, save the registration number (cid) of the same APN to FOMA terminal.

Uninstalling the FOMA PC configuration software

Before operation, read “Before installation/uninstallation” ☛P3

Uninstall preparations

Right-click in the task tray, and click *常駐させない* (Do not reside) to cancel the resident of W-TCP setup.

Uninstalling

Example For Windows XP

1 Click *スタート*, *コントロールパネル* and the *プログラムの追加と削除* icon

■ **For Windows 2000:**

① **Click *スタート*, *設定* and *コントロールパネル***

② **Double-click the *アプリケーションの追加と削除* icon**

2 Select *NTT DoCoMo FOMA PC 設定ソフト* (NTT DoCoMo FOMA PC configuration software) ▶ Click *変更と削除*

3 Check that you have selected the correct program to delete and click *はい*

The uninstallation of the FOMA PC configuration software starts.

■ **Canceling W-TCP optimization:**

A confirmation screen appears when W-TCP has been optimized.

- Usually, click *はい* and deactivate the optimization.
- Select whether to reboot immediately and click *完了* when Windows prompts you to reboot the PC.
- Canceling of W-TCP optimization is performed after the PC is rebooted.

4 Click *OK*

Communicating without using the FOMA PC configuration software

The method of dialup network setup for packet communication/64K data communication without using the FOMA PC configuration software is explained.

Setting operation procedures

Install the communication configuration file ☛P4
Connect a PC to FOMA terminal ☛P3

↓

Set the dialup connection (APN)
(This setting is not required for 64K data communication, and for packet communication via mopera U / mopera.)

↓

Set to show/hide caller ID ☛P17 (Set as required.)

↓

Other settings (AT commands) ☛P23
(Set as required.)

↓

Dialup network setup

OS	Settings	
	Dialup connection	TCP/IP
Windows XP	P17	P18
Windows 2000	P19	P21

- For details on settings, inquire your provider or network administrator.

↓

Connect ☛P22 (Disconnect ☛P22)

Setting the dialup connection (APN) for packet communication

Communication software to input AT commands is required for making settings. The method of setting using “HyperTerminal” that comes with Windows is explained here.

Default cid1：mopera.ne.jp
cid3：mopera.net
cid2, 4 to 10：not recorded

Example For Windows XP

1 Connect FOMA terminal to a PC ☛P3

2 Click *スタート*, *すべてのプログラム*, *アクセサリ*, *通信* and *ハイパーターミナル* (HyperTerminal).

- For Windows 2000, *プログラム* is displayed for *すべてのプログラム*.

Next

3 Enter any connection name in *名前* ▶ Click *OK*

4 Enter a fictional phone number (such as 0) for *電話番号*, select *FOMA D702iBCL* from *接続方法* (Connection procedure) ▶ Click *OK*

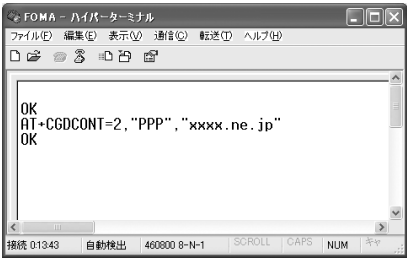
- Since *市外局番*(Area code) does not effect dialup connection (APN) setting, it is not necessary to change.

5 Click *キャンセル* when the connection screen appears

6 Enter the dialup connection (APN) ▶ Press ↵

- Enter in the format "AT+CGDCONT =<cid>, "PPP", "APN"".

<cid> : Enter any number between 2, 4 to 10.
"PPP" : Enter "PPP".
"APN" : Enter the dialup connection (APN) in quotation marks.



If ***OK*** is displayed, the dialup connection (APN) has now been set.

■ **Resetting dialup connection (APN) settings:**

AT + CGDCONT= ↵
Reset all cids.
- The settings are restored to the default settings for <cid> = 1 and 3, and the settings for <cid> = 2, 4 to 10 are cleared.

AT + CGDCONT=<cid> ↵
Reset the specified cid

■ **Checking dialup connection (APN) settings:**

AT + CGDCONT? ↵
- For details ☛P28

■ **When nothing is displayed even if AT command is entered: ATE1 ↵**
- For details ☛P26

7 Check that *OK* is displayed and click *ファイル* and *ハイパーターミナルの終了* (End HyperTerminal)

- After *現在、接続されています。切断してもよろしいですか?* (Connecting now. Disconnect?) appears, click *はい*
- *"XXX"と名前付けされた接続を保存しますか?* (Save the connection named "XXX"?) appears. Click *いいえ*.

Dialup connection (APN) and registration number (cid)

The dialup connection (APN) for packet communication can be set for registration numbers between cid1 to 10 in FOMA terminal. By default, "mopera.ne.jp" is set for cid1 and "mopera.net" for cid3. For connecting to other providers or corporate LANs, register the dialup connection (APN) for cid2, 4 to 10.

Next

- For the dialup connection (APN), inquire your provider or network administrator.
- The dialup connection settings can be considered as phonebook registration for packet communication. The comparison between dialup connection settings and the FOMA terminal phonebook entries is as follows:

Dialup connection settings	FOMA terminal phonebook entries
Registration number (cid)	Registration number (Phonebook No.)
APN	Party's phone number

- The registered cid become the connection numbers of dialup connection setting.

Setting to show/hide caller ID

Take care when disclosing your caller ID since it is important information.

- Settings must be "show" for using mopera U / mopera.

Default not set

Example For Windows XP

1 Perform Steps 1 to 5 of "Setting the dialup connection (APN) for packet communication" ☛P15

2 Set to show (186)/hide (184) caller ID during packet communication

Enter in the format "AT ＊ DGPIR=<n>".

AT ＊ DGPIR=1 ↵
When packet communication connection is being established, "184" is added to connect to the dialup connection (APN).

AT ＊ DGPIR=2 ↵
When packet communication connection is being established, "186" is added to connect to the dialup connection (APN).

■ **When nothing is displayed even if AT command is entered: ATE1** ↵

- For details ☛P26

3 Check that *OK* is displayed and click *ファイル* and *ハイパーターミナル*の終了

- After *現在、接続されています。切断してもよろしいですか？* appears, click *はい*
- *"XXX"と名前付けされた接続を保存しますか?* appears. Click *いいえ*.

■ **Setting to show/hide caller ID by dialup network settings**

The dialup network settings can also be used to append "186 (show)" or "184 (hide)" to the dialup connection number.

If "186" (show) or "184" (hide) is set by both the AT ＊ DGPIR command and dialup network settings, the show/hide caller ID setting is as follows:

Setting made by AT ＊ DGPIR command / Dialup network setting (<cid>=3)	Not set	Hide	Show
＊ 99 ＊＊＊ 3#	Caller ID is sent.	Caller ID is not sent.	Caller ID is sent.
184 ＊ 99 ＊＊＊ 3#	Caller ID is not sent.		
186 ＊ 99 ＊＊＊ 3#	Caller ID is sent.		

- To reset the show/hide setting made by the AT ＊ DGPIR command to the default (not set), enter "AT ＊ DGPIR=0".

Setting for Windows XP

Setting the dialup connection

1 Click *スタート*, *すべてのプログラム*, *アクセサリ*, *通信* and *ネットワーク接続*

The *ネットワーク接続* screen appears.

2 Click *新しい接続を作成する* (Create new connection) in *ネットワークタスク* (Network task)

The *新しい接続ウィザード* (New connection wizard) screen appears.

3 Click *次へ*

A screen for selecting the type of network connection appears.

4 Select *インターネットに接続する* (Connect to Internet) ▶ Click *次へ*

The setup screen appears.

5 Select *接続を手動でセットアップする* (Set up connection manually) ▶ Click *次へ*

The Internet connection screen appears.

6 Select *ダイヤルアップモデムを使用して接続する* (Use dialup modem to connect) ▶ Click *次へ*

The device selection screen appears.

- If there is only one modem installed, the device selection screen is not displayed. Go to Step 8.

Next

7 Select *モデム－FOMA D702iBCL (COMx)1 (Modem: FOMA D702iBCL (COMx)) ▶ Click *次へ***

- Check that only *モデム－FOMA D702iBCL (COMx)**1 is selected.

*1 "x" of *COMx* varies by PC to be used.

8 Enter any connection name in *ISP名* (ISP name) ▶ Click *次へ*

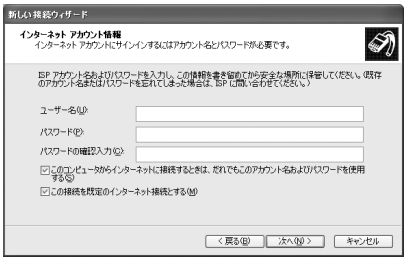
9 Enter the number of the dialup connection (one-byte) in *電話番号* ▶ Click *次へ*

■ **For packet communication:**
Enter "＊99＊＊＊<cid>#".
- For <cid>, enter the cid number registered in "Setting the dialup connection (APN) for packet communication" ☛P15. "＊99＊＊＊3#" for mopera U and "＊99＊＊＊1#" for mopera.

■ **For 64K data communication:**
Enter the dialup connection phone number.
- "＊8701" for mopera U and " ＊9601" for mopera.

10 Enter the user name in *ユーザー名*, the password in *パスワード* and *パスワードの確認入力* (Check and enter password) ▶ Set each items ▶ Click *次へ*

- When the access point is mopera U / mopera, the entry for *ユーザー名*, *パスワード* and *パスワードの確認入力* is not required for connection. Set each items as required and click *次へ*.



11 Click *完了*

12 Check the settings and click *キャンセル*

- Check the settings without connecting to the Internet immediately.

Setting TCP/IP protocol

1 Select the created dialup connection icon ▶ Click *ファイル* and *プロパティ* (Properties)

Next

2 Check the setting of each item in the *全般* (General) tab

- When multiple modems are installed to the PC, select *モデム－FOMA D702iBCL (COMx)**1 in *接続方法*.
- Check that only *モデム－FOMA D702iBCL (COMx)**1 is selected.
  *1 "x" of ***COMx*** varies by PC to be used.
- Uncheck (☐) *ダイヤル情報を使う* (Use dial information).

3 Click the *ネットワーク* (Network) tab ▶ Check the setting of each item

- Set ***PPP: Windows 95/98/NT4/2000, Internet*** as *呼び出すダイヤルアップサーバーの種類* (Type of dialup server to call).
- Select only *インターネット プロトコル (TCP/IP)* (Internet protocol (TCP/IP)) in *この接続は次の項目を使用します* (Use these items for this connection). Since ***QoS***パケットスケジューラ (QoS packet scheduler) settings can not be changed, leave it as it is.

4 Click *設定*

5 Uncheck (☐) all items and click *OK*

The dialup connection properties screen reappears.

6 Click *OK*

Setting for Windows 2000

Setting the dialup connection

1 Click *スタート*, *プログラム*, *アクセサリ*, *通信* and *ネットワークとダイヤルアップ接続*

The *ネットワークとダイヤルアップ接続* screen appears.

2 Double-click the *新しい接続の作成* (Create new connection) icon

The *所在地情報* (Location information) screen appears.

- This screen appears for the first time you double-click the *新しい接続の作成* icon. From the second time, go to Step 5.

3 Enter the number in *市外局番* (Area code) ▶ Click *OK*

The *電話とモデムのオプション* (Phone and modem options) screen appears.

4 Click *OK*

The *ネットワークの接続ウィザード* (Network connection wizard) screen appears.

5 Click *次へ*

A screen for selecting the type of network connection appears.

6 Select *インターネットにダイヤルアップ接続する* (Use dialup connection to Internet) ▶ Click *次へ*

The start screen of *インターネット接続ウィザード* (Internet connection wizard) appears.

Next

7 Select *インターネット接続を手動で設定するか、またはローカルエリアネットワーク(LAN)を使って接続します* (Set the Internet connection manually or connect using local area network (LAN)) ▶ Click *次へ*

The Internet connection setting selection screen appears.

8 Select *電話回線とモデムを使ってインターネットに接続します* (Connect to Internet using phone line and modem) ▶ Click *次へ*

The modem selection screen appears.

- This screen is not displayed if multiple modems are not installed. Go to Step 10.

9 Check that *インターネットへの接続に使うモデムを選択する* (Select modem to use for connection to Internet) is set to *FOMA D702iBCL* and click *次へ*

The Internet account connection information screen appears.

- If *FOMA D702iBCL* is not set, set *FOMA D702iBCL*.

10 Enter the number of dialup connection (one-byte) in *電話番号* ▶ Click *詳細設定* (Detailed settings)

- Uncheck (☐) *市外局番とダイヤル情報を使う* (Use area code and dial information).

■ **For packet communication:**

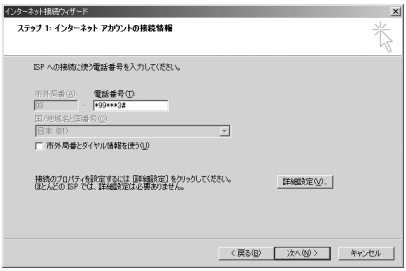
Enter "＊99＊＊＊<cid>#".

- For <cid>, enter the cid number registered in "Setting the dialup connection (APN) for packet communication" ☛P15. "＊ 99 ＊＊＊ 3#" for mopera U and "＊ 99 ＊＊＊ 1#" for mopera.

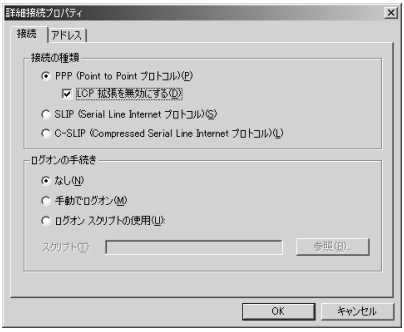
■ **For 64K data communication:**

Enter the dialup connection phone number.

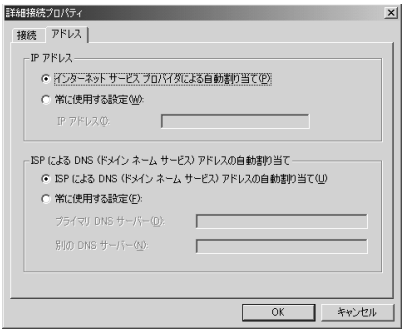
- "＊ 8701" for mopera U and "＊ 9601" for mopera.



11 Set each item in the *接続* tab as shown below



12 Click the *アドレス* (Address) tab ▶ Set each item as shown below



13 Click *OK*

The Internet account connection information screen reappears.

14 Click *次へ*

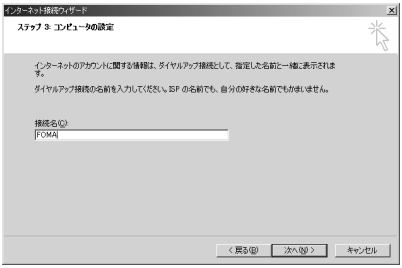
The Internet account logon information screen appears.

15 Enter the user name in *ユーザー名* and the password in *パスワード* ▶ Click *次へ*

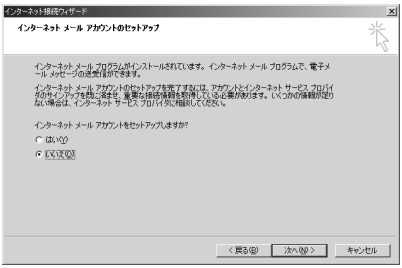
- When the dialup connection is mopera U / mopera, the entry for *ユーザー名* or *パスワード* is not required for connection. When a confirmation screen for no entry appears, click *はい*.

Next

16 Enter any connection name in *接続名* ▶ Click *次へ*



17 Select *いいえ* ▶ Click *次へ*

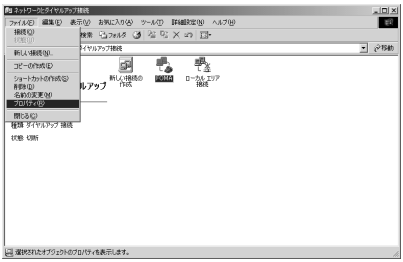


18 Click *完了*

The *ネットワークとダイヤルアップ接続* screen reappears.

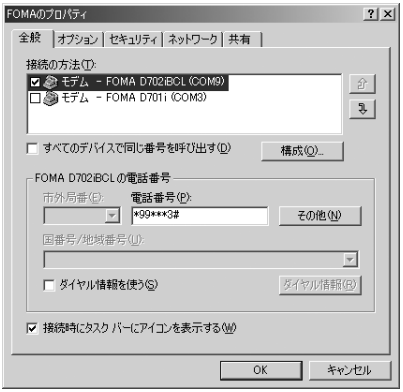
Setting TCP/IP protocol

1 Select the created dialup connection icon ▶ Click *ファイル* and *プロパティ*



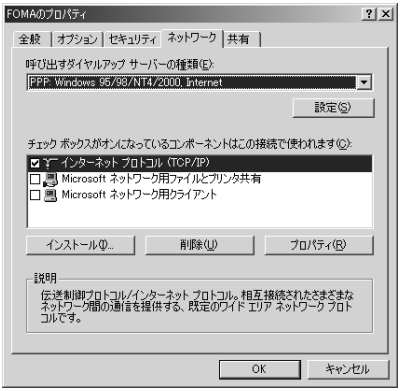
2 Check the setting of each item in the *全般* tab

- If multiple modems are installed in the PC, select *モデム－FOMA D702iBCL (COMx)**1 in *接続の方法* (Connection procedure).
  When the modem is changed, all items in *電話番号* is initialized. Re-enter the dialup connection phone number in that case.
- Check that only *モデム－FOMA D702iBCL (COMx)**1 is selected.
  *1 "x" of *COMx* varies by PC to be used.
- Uncheck (☐) *ダイヤル情報を使う*.



3 Click the *ネットワーク* tab ▶ Check the setting of each item

- Set ***PPP: Windows 95/98/NT4/2000, Internet*** as *呼び出すダイヤルアップサーバーの種類*.
- Select only *インターネット プロトコル (TCP/IP)* for component.



4 Click *設定*

Next

5 Uncheck all items (☐) and click *OK*

The dialup connection properties screen reappears.

6 Click *OK*

Connecting through dial-up

The method of dialup connection for packet communication/64K data communication is explained.

Example For Windows XP

1 Connect FOMA terminal to a PC ☛P3

2 Click *スタート*, *すべてのプログラム*, *アクセサリ*, *通信* and *ネットワーク接続*

The *ネットワーク接続* screen appears.

- Under the Windows 2000, click *スタート*, *プログラム*, *アクセサリ*, *通信* and *ネットワークとダイヤルアップ接続*.

3 Double-click the dialup connection icon

4 Check each item and click *ダイヤル*

- The number of dialup connection set for the dialup network is shown in *ダイヤル* or *電話番号*.
- When the dialup connection is mopera U / mopera, the entry for *ユーザー名* or *パスワード* is not required for connection.

Disconnecting communication

Just exiting the browser may not disconnect the connection. To ensure disconnection, perform the following operation:

1 Click in the task tray

2 Click *切断*

AT command

AT commands are commands for setting FOMA terminal functions using a PC.
FOMA terminals comply with AT commands and support some extended commands and proprietary AT commands.

About the AT command

■ **AT command input format**

"AT" must be entered before each AT command. Commands must be entered in one-byte alphanumeric characters. An input example is as follows:

ATD ＊ 99 ＊ ＊ ＊ 3# ↵
Command Parameter Press Enter key.

AT commands and their parameters (numbers or symbols) must be entered on a single line. Enter all the characters from the first character to the character just before ↵ in a single line. Up to 160 characters (including "AT") can be entered in each line.

■ **AT command input mode**

To operate FOMA terminal using AT commands, the PC must be in the terminal mode.
Terminal mode is a mode that lets the PC operate as a single communication terminal. Characters entered from the keyboard are sent to the device or line connected to the communication port.

- Offline mode
  FOMA terminal in standby status. Usually, FOMA terminal must be in this status to use AT commands to control it.
- Online data mode
  FOMA terminal is in the communication mode. If you enter AT commands when FOMA terminal is performing communication, the received characters are sent directly to the communication receiver and may cause the receiver's modem to malfunction. Do not enter AT commands while FOMA terminal is performing communication.
- Online command mode
  AT commands allow you to operate FOMA terminal even when FOMA terminal is in the communication mode. These operations make it possible to execute AT commands without interfering with the connection to the communication receiver, and normal communication can be continued after the commands have finished executing.

Switching between the online data mode and online command mode

To switch FOMA terminal from the online data mode to online command mode, you can use either of the following procedures:

- Enter the "+++" command or the code set in the "S2" register.
- Turn the RS-232C*1 ER signal off when set in "AT&D1".

To switch from the online command mode to online data mode, enter "ATO ↵".

*1 The USB interface emulates an RS-232C signal line, so RS-232C signal control using communication applications is possible.

- When AT commands are input, entering “¥” may cause “\” to appear depending on the font settings for the PC or communication software in use.
- If the battery pack is removed from FOMA terminal before the terminal power is turned off, the setting values may not be recorded.
- AT commands that can be used via the FOMA D702iBCL Modem Port are described in this list.

*1 : Returns the setting to default with the AT & F command.
*2 : Stores the command setting into FOMA terminal with the AT&W command and restores it with the ATZ command.
None : Indicates the AT command does not include any display command or test command.
[ ] : Indicates the parameter can be omitted.

Command		Description & Parameter					
AT%V		Shows the version of your FOMA terminal in the format of “Verx.xx”.					
	ex.	Enter	AT%V	Display	None	Test	None
AT&C [n]		Selects the operational conditions of the circuit CD signal outgoing to DTE. n=0: The circuit CD signal is always on. (when parameter omitted) n=1: The circuit CD signal varies depending on the other modem. (default)					
*1, *2	ex.	Enter	AT&C1	Display	None	Test	None
AT&D [n]		Determines an action to be taken when the circuit ER signal coming from DTE changes from on to off in the online data mode. n=0: Ignores the ER signal condition (always on). (when parameter omitted) n=1: Switches the mode to the online command mode when the ER signal changes from on to off. n=2: Disconnects the circuit and switches the mode to the offline mode when the ER signal changes from on to off. (default)					
*1, *2	ex.	Enter	AT&D1	Display	None	Test	None
AT&E [n]		Selects type of speed display used when connection is made. This command is effective only when the ATX command is other than “n=0”. n=0: Displays communication speed of wireless zone. n=1: Displays communication speed between PC and FOMA terminal. (default)					
*1, *2	ex.	Enter	AT&E1	Display	None	Test	None
AT&F [0]		Resets all FOMA terminal state to the default. When executed while receiving a call, it resets FOMA terminal state to the default without affecting the call. When executed during communication, the terminal state returns to default after it disconnects (display “NO CARRIER”) the communication.					
	ex.	Enter	AT&F0	Display	None	Test	None
AT&S [n]		Determines the control of the DR signal FOMA terminal outputs. n=0: Always on. (default and when parameter omitted) n=1: The DR signal turns on when the circuit is connected.					
*1, *2	ex.	Enter	AT&S0	Display	None	Test	None
AT&W [0]		Writes the current settings into FOMA terminal.					
	ex.	Enter	AT&W0	Display	None	Test	None
AT ＊ DANTE		Shows the signal strength (reception level) in the format of “ ＊ DANTE:m”. m=0: Outside the service area m=1 to 3: Number of antennas displayed on FOMA terminal (m=1:0 or 1)					
	ex.	Enter	AT ＊ DANTE	Display	AT ＊ DANTE?	Test	AT ＊ DANTE=?
AT ＊ DGANSM=n		Specifies whether to reject or accept an incoming packet call. n=0: Sets both the incoming call rejection and the incoming call acceptance off. (default) n=1: Sets the incoming call rejection on. n=2: Sets the incoming call acceptance on.					
	ex.	Enter	AT ＊ DGANSM=0	Display	AT ＊ DGANSM?	Test	AT ＊ DGANSM=?
AT ＊ DGAPL=n [,cid]		Specifies dialup connections (APNs) to accept incoming packet calls from them. For an APN, use the cid parameter defined with “+CGDCONT”. n=0: Adds the APN defined with the cid parameter to the call acceptance list. n=1: Deletes the APN defined with the cid parameter from the call acceptance list. When you omit the cid parameter, all cids will be added or deleted.					
	ex.	Enter	AT ＊ DGAPL=0,1	Display	AT ＊ DGAPL?	Test	AT ＊ DGAPL=?
AT ＊ DGARL=n [,cid]		Specifies dialup connections (APNs) to reject incoming packet calls from them. For an APN, use the cid parameter defined with “+CGDCONT”. n=0: Adds the APN defined with the cid parameter to the call rejection list. n=1: Deletes the APN defined with the cid parameter from the call rejection list. When you omit the cid parameter, all cids will be added or deleted.					
	ex.	Enter	AT ＊ DGARL=0,1	Display	AT ＊ DGARL?	Test	AT ＊ DGARL=?

Next

Command		Description & Parameter					
AT ＊ DGPIR=n		Specifies whether to notify the caller ID for packet communication. This specification is effective both for incoming and outgoing calls. n=0: The APN is used as is when a packet communication is established. (default) n=1: Adds “184” to the APN when a packet communication is established. n=2: Adds “186” to the APN when a packet communication is established.					
	ex.	Enter	AT ＊ DGPIR=0	Display	AT ＊ DGPIR?	Test	AT ＊ DGPIR=?
AT ＊ DRPW		Shows the level of power reception in the format of “ ＊ DRPW:m”, where the value of m ranges from 0 to 75.					
	ex.	Enter	AT ＊ DRPW	Display	None	Test	AT ＊ DRPW=?
+++		Changes FOMA terminal mode from the online data to the online command. The duration of escape guard is fixed to 1 sec.					
	ex.	Enter	+++	Display	None	Test	None
AT+CEER		Shows a disconnection reason of the previous communication. ☛P28					
	ex.	Enter	AT+CEER	Display	None	Test	AT+CEER=?
AT+CGDCONT		Specifies the APN for packet communication. ☛P28					
AT+CGEQMIN		Specifies the criteria for judging whether to approve the QoS (Quality of Service) level provisioned by the network when the packet communication is established. ☛P28					
AT+CGEQREQ		Specifies the QoS level requested to the network when transmission is performed during packet communication. ☛P29					
AT+CGMR		Shows the version of your FOMA terminal with a 16-digit number.					
	ex.	Enter	AT+CGMR	Display	None	Test	AT+CGMR=?
AT+CGREG= [n]		Determines whether to notify the network registration state. Either “inside the service area” or “outside the service area” is notified. n=0: Not notified. (default and when parameter omitted) n=1: Notified in the format of “+CGREG:n,stat”. stat=0: Outside the service area stat=1: Inside the service area (home) stat=4: Unknown stat=5: Inside the service area (visitor)					
*1, *2	ex.	Enter	AT+CGREG=1	Display	AT+CGREG?	Test	AT+CGREG=?
AT+CGSN		Shows the manufacturer’s serial number of FOMA terminal.					
	ex.	Enter	AT+CGSN	Display	None	Test	AT+CGSN=?
AT+CLIP= [n]		Specifies whether to show the caller ID of an incoming 64K data communication on the PC’s screen. n=0: Does not show the information. (default and when parameter omitted) n=1: Shows the information. If you enter “AT+CLIP?”, it shows “+CLIP:n,m”. m=0: The network setting that does not show caller ID to the other party when originating a call. m=1: The network setting that shows caller ID to the other party when originating a call. m=2: Unknown					
*1, *2	ex.	Enter	AT+CLIP=0	Display	AT+CLIP?	Test	AT+CLIP=?
AT+CLIR= [n]		Specifies whether to show your caller ID to the other party when you originate a 64K data communication. n=0: In accordance with the service agreement. (when parameter omitted) n=1: Not notified. n=2: Notifies the caller ID. (default) If you enter “AT+CLIR?”, it shows “+CLIR:n,m”. m=0: CLIR is not activated. (caller ID always notified) m=1: CLIR is activated. (caller ID always not notified) m=2: Unknown m=3: CLIR temporary mode (default for “not notified”) m=4: CLIR temporary mode. (default for “notified”)					
	ex.	Enter	AT+CLIR=0	Display	AT+CLIR?	Test	AT+CLIR=?
AT+CMEE= [n]		Specifies the error report format of FOMA terminal. ☛P28 n=0: Shows “ERROR”. (default and when parameter omitted) n=1: Shows in the format of “+CME ERROR:xxxx”. (xxxx=numbers) n=2: Shows in the format of “+CME ERROR:xxxx”. (xxxx=characters)					
*1, *2	ex.	Enter	AT+CMEE=0	Display	AT+CMEE?	Test	AT+CMEE=?
AT+CNUM		Shows the Own Number data of FOMA terminal in the format of “+CNUM:, “number”,type”. number: Phone number type=129: Does not show “+81”. type=145: Shows “+81”.					
	ex.	Enter	AT+CNUM	Display	None	Test	AT+CNUM=?
AT+CR= [n]		Specifies whether to display the communication type (packet communication or 64K data communication) before ***CONNECT*** is displayed, during line connection. n=0: Does not show the information. (default and when parameter omitted) n=1: Shows the information in the format of “+CR:serv”. serv=SYNC: 64K data communication serv=GPRS: Packet communication					
*1, *2	ex.	Enter	AT+CR=0	Display	AT+CR?	Test	AT+CR=?

Command		Description & Parameter					
AT+CRC= [n]		Specifies whether to use result codes of "+CRING:type" for incoming calls. n=0: Does not use the result code of "+CRING:type". (default and when parameter omitted) n=1: Uses the result code of "CRING:type". The example of codes are as follows: Packet communication ⋯ +CRING:GPRS "PPP"⋯ "mopera.net" 64K data communication⋯ +CRING:SYNC					
*1, *2	ex.	Enter	AT+CRC=0	Display	AT+CRC?	Test	AT+CRC=?
AT+CREG= [n]		Specifies whether to show the "inside/outside the service area" information. n=0: Does not show the information. (default and when parameter omitted) n=1: Shows the information. If you enter "AT+CREG?", it shows the information in the format of "+CREG:n,stat". stat=0: Outside the service area stat=1: Inside the service area (home) stat=4: Unknown stat=5: Inside the service area (visitor)					
*1, *2	ex.	Enter	AT+CREG=0	Display	AT+CREG?	Test	AT+CREG=?
AT+GMI		Shows the manufacturer's name of FOMA terminal.					
	ex.	Enter	AT+GMI	Display	None	Test	AT+GMI=?
AT+GMM		Shows FOMA terminal name.					
	ex.	Enter	AT+GMM	Display	None	Test	AT+GMM=?
AT+GMR		Shows the version of FOMA terminal.					
	ex.	Enter	AT+GMR	Display	None	Test	AT+GMR=?
AT+IFC= [n,[m]]		Specifies the local flow control between the PC and FOMA terminal. n is for setting the DCE-by-DTE control. n=0: Does not use the flow control. n=1: Uses XON/XOFF flow control. n=2: Uses RS/CS (RTS/CTS) flow control. (default) m is for setting the DTE-by-DCE control. If you omit this parameter, the same value as n is assumed. m=0: Does not use the flow control. m=1: Uses XON/XOFF flow control. m=2: Uses RS/CS (RTS/CTS) flow control. (default) If you omit both parameters, "AT+IFC=2, 2" is assumed.					
*1, *2	ex.	Enter	AT+IFC=2,2	Display	AT+IFC?	Test	AT+IFC=?
AT+WS46= [22]		Specifies the radio network FOMA terminal uses to originate a call.					
*1, *2	ex.	Enter	AT+WS46=22	Display	AT+WS46?	Test	AT+WS46=?
ATA		Specifies how to handle incoming packet or 64K data communications. For incoming packet communications, you can specify the following: ATA184: Receives an incoming call without the caller ID displayed ATA186: Receives an incoming call with the caller ID displayed					
	ex.	Enter	ATA	Display	None	Test	None
A/		Reexecutes the previous command.					
	ex.	Enter	A/	Display	None	Test	None
ATD		Originates a packet or 64K data communication. · Packet communication: Enter "ATD ＊ 99 ＊＊＊ cid#". If you omit cid parameter, "cid=1" is assumed. When you enter it in the format starting with "ATD184 ＊ 99", 184 (hide caller ID) is attached to the call outgoing to the APN specified with cid parameter (186 (show caller ID) is treated in the same manner). · 64K data communication: Enter it in the format of "ATD phone-number". · Redialing: Enter in the format of "ATDL" or "ATDN".					
	ex.	Enter	ATD phone-number	Display	None	Test	None
ATE [n]		Echoes back the characters sent from the PC. n=0: Gives no echo back. (when parameter omitted) n=1: Gives echo back. (default)					
*1, *2	ex.	Enter	ATE0	Display	None	Test	None
ATH		Disconnects communication.					
	ex.	Enter	ATH	Display	None	Test	None
ATI [n]		Shows the identification code. n=0:Shows "NTT DoCoMo". (when parameter omitted) n=1:Shows model name of FOMA terminal. n=2:Shows the version of FOMA terminal.					
	ex.	Enter	ATI0	Display	None	Test	None
ATO		Switched the mode from the online command to the online data.					
	ex.	Enter	ATO	Display	None	Test	None
ATQ [n]		Specifies whether to show the result code on the PC. n=0: Shows the result code. (default and when parameter omitted) n=1: Does not show the result code.					
*1, *2	ex.	Enter	ATQ0	Display	None	Test	None
ATV [n]		Specifies whether to show the result with numeric codes or text messages. n=0: Shows the result with numeric codes. (when parameter omitted) n=1: Shows the result with text messages. (default)					
*1, *2	ex.	Enter	ATV1	Display	None	Test	None

Command		Description & Parameter					
ATX [n]		Specifies whether to detect busy tone and dial tone, and whether to display the communication speed. n=0: Busy tone not detected, dial tone not detected, communication speed not displayed. (when parameter omitted) n=1: Busy tone not detected, dial tone not detected, communication speed displayed. n=2: Busy tone not detected, dial tone detected, communication speed displayed. n=3: Busy tone detected, dial tone not detected, communication speed displayed. n=4: Busy tone detected, dial tone detected, communication speed displayed. (default)					
*1, *2	ex.	Enter	ATX1	Display	None	Test	None
ATZ		Resets FOMA terminal settings to those stored in the non-volatile memory with the AT&W command. If you enter this command during receiving a packet or 64K data communication, the settings are reset without affecting the call reception. If you enter it during communication, it disconnects the communication first and resets the settings.					
	ex.	Enter	ATZ	Display	None	Test	None
ATS0= [n]		Specifies the number of ringing signals (RING) which triggers automatic call acceptance on FOMA terminal. n=0: Does not accept calls automatically. (default and when parameter omitted) n=1 to 255					
*1, *2	ex.	Enter	ATS0=0	Display	ATS0?	Test	None
ATS2= [n]		Specifies an escape character. n=0 to 127 (43: Default 0: When parameter omitted 127: To disable the escape processing)					
*1	ex.	Enter	ATS2=43	Display	ATS2?	Test	None
ATS3= [13]		Specifies a carriage return (CR) character that indicates the end of AT command's character string (the setting is not changeable). It is attached to the end of the echoed back command string and the result code.					
*1	ex.	Enter	ATS3=13	Display	ATS3?	Test	None
ATS4= [10]		Specifies the Line Feed (LF) character (the setting is not changeable). It follows the CR character when the result code is displayed with text.					
*1	ex.	Enter	ATS4=10	Display	ATS4?	Test	None
ATS5= [8]		Specifies a backspace (BS) character that deletes the last character in the input buffer while you are entering an AT command (the setting is not changeable).					
*1	ex.	Enter	ATS5=8	Display	ATS5?	Test	None
ATS6= [n]		Specifies the pause period before dialing. This command sets the register but no action will occur. n=2 to 10: 2 to 10 seconds. (5: Default and when parameter omitted)					
*1	ex.	Enter	ATS6=5	Display	ATS6?	Test	None
ATS8= [n]		Specifies the comma dialing function (pause time). This command sets the register but the pause time is fixed to 3 seconds. n=0 to 255: 0 to 255 seconds. (3: default 0: When parameter is omitted)					
*1	ex.	Enter	ATS8=3	Display	ATS8?	Test	None
ATS10= [n]		Specifies the permissible delay time before automatic disconnection. This command sets the register but no action will occur. n=1 to 255: in 1/10 seconds. (1: default and when parameter omitted)					
*1, *2	ex.	Enter	ATS10=1	Display	ATS10?	Test	None
ATS30= [n]		Specifies the time elapsed after the last data transmission to activate automatic disconnection. This command is effective for 64K data communication. n=1 to 255: 1 to 255 minutes. n=0: Does not disconnect. (default and when parameter omitted)					
*1	ex.	Enter	ATS30=0	Display	ATS30?	Test	None
ATS103= [n]		Specifies a mark to be used to delimit a destination sub-address if attached. This command is effective for 64K data communication. n=0: ＊ (when parameter omitted) n=1: / (default) n=2: ¥					
*1	ex.	Enter	ATS103=0	Display	ATS103?	Test	None
ATS104= [n]		Specifies a mark to be used to delimit a caller sub-address if attached. This command is effective for 64K data communication. n=0: # (when parameter omitted) n=1: % (default) n=2: &					
*1	ex.	Enter	ATS104=0	Display	ATS104?	Test	None
AT¥S		Shows the command settings and the contents of the S register.					
	ex.	Enter	AT¥S	Display	None	Test	None
AT¥V [n]		Selects whether to use the extended result code for connection. This command takes effect when the ATX command parameter is "n=1 to 4". n=0: Does not use the extended result code. (default and when parameter omitted) n=1: Uses the extended result code.					
*1, *2	ex.	Enter	AT¥V0	Display	None	Test	None

Disconnection reason list

■ Packet communication

Value	Reason
27	APN is not present or is incorrect.
30	Disconnected by network.
33	Terminal does not subscribe to packet communication.
36	Normal disconnection.

■ 64K data communication

Value	Reason
1	Specified number does not exist.
16	Normal disconnection.
17	Communication is impossible because remote device is busy.
18	You made a call but did not receive a response within the specified time.
19	A call was made to the other party, but no response.
21	The remote device rejected incoming calls.
63	The service and option of the network are not valid.
65	Unavailable processing speed was specified.
88	You made a call to a terminal or received a call from a terminal with different terminal properties.

Error messages list

No.	Text display	Reason
10	SIM not inserted	No UIM (FOMA card) is set.
15	SIM wrong	Other than UIM (IC card equivalent to UIM) is inserted.
16	incorrect password	Incorrect password
100	unknown	Unknown error

Supplement to AT command

■ Command name: AT+CGDCONT= [parameter]

Sets the dialup connection (APN) for packet communication.

Format

AT+CGDCONT=[<cid>[, “PPP” [, “<APN>”]]]

Parameter description

<cid>: 1 to 10
“mopera.ne.jp” (APN) is registered in cid 1, and “mopera.net” in cid 3.
<APN>: Optional

Example of execution

The command used to register an APN named “abc” (when <cid>=2).
AT+CGDCONT=2, “PPP”, “abc”

Operation performed when parameter is omitted

AT+CGDCONT=
Clears all <cid> settings. However, entry for “<cid>=1” and “<cid>=3” is restored to the default setting.

AT+CGDCONT=<cid>
Clears the specified <cid> settings. However, entry for “<cid>=1” and “<cid>=3” is restored to the default setting.

AT+CGDCONT=?
Displays a list of assignable values.

AT+CGDCONT?
Displays the current setting values.

■ Command name: AT+CGEQMIN= [parameter]

Registers the criteria for judging whether to approve QoS provisioned by the network when PPP packet communication is established.

Format

AT+CGEQMIN= [<cid>[,,<Maximum bitrate UL>[,<Maximum bitrate DL>]]]

Parameter description

<cid>：1 to 10
“mopera.ne.jp” (APN) is registered in cid 1, “mopera.net” in cid 3.
<Maximum bitrate UL>: None or 64
<Maximum bitrate DL>: None or 384
For “Maximum bitrate UL” and “Maximum bitrate DL”, the minimum communication speed (in kbps) is set for both upload and download traffic between FOMA terminal and the base station. If the parameter is set to “None (default)”, all speeds are permissible. However, if “64” and “384” are set, any connection at a speed less than the above limit is not permitted, and chances are that packet communication will not be connected.

Example of execution

(1) Command used to permit all speeds both upload and download (when <cid>=2)
AT+CGEQMIN=2

(2) Command used to permit only 64kbps upload and 384 kbps download (when <cid>=4)
AT+CGEQMIN=4,,64,384

(3) Command used to permit 64 kbps upload and all speeds download (when <cid>=5)
AT+CGEQMIN=5,,64

(4) Command used to permit all speeds upload and only 384 kbps download (when <cid>=6)
AT+CGEQMIN=6,,,384

Next

Operation performed when parameter is omitted

AT+CGEQMIN=

Clears all <cid> settings.

AT+CGEQMIN=<cid>

Returns the specified <cid> to the default setting.

AT+CGEQMIN=?

Displays a list of assignable values.

AT+CGEQMIN?

Displays the current settings.

■ Command name: AT+CGEQREQ=[parameter]

Sets QoS requested to the network when transmission is performed during PPP packet communication.

Format

AT+CGEQREQ=[<cid>]

Parameter description

Only commands that require connection at 64 kbps upload/384 kbps download can be set. The contents are set by default for each cid.

<cid>: 1 to 10

"mopera.ne.jp" (APN) is registered in cid 1, and "mopera.net" in cid 3.

Example of execution

(when <cid>=2)

AT+CGEQREQ=2

Operation performed when parameter is omitted

AT+CGEQREQ=

Returns all <cid> to the default setting.

AT+CGEQREQ=<cid>

Returns the specified <cid> to the default setting.

AT+CGEQREQ=?

Displays a list of assignable values.

AT+CGEQREQ?

Displays the current settings.

Result codes

- When the ATV [n] command (☛P26) is set to "n=1", the result code is displayed in the text display (default). When the command is set to "n=0", the result code is displayed in the numeric display.

■ Result codes

No.	Text display	Meaning
0	OK	Operation performed normally
1	CONNECT	Terminal connected to remote device
2	RING	Incoming call
3	NO CARRIER	Line disconnected
4	ERROR	Unable to accept command
6	NO DIALTONE	Unable to detect dial tone
7	BUSY	Detecting the busy tone
8	NO ANSWER	Completion of connection timed out
100	RESTRICTION	The communication network is busy. Please wait for a while and retry.
101	DELAYED	Redialing restricted

■ Extended result code

No.	Text display	Connection speed between FOMA terminal - PC
5	CONNECT 1200	1,200 bps
10	CONNECT 2400	2,400 bps
11	CONNECT 4800	4,800 bps
13	CONNECT 7200	7,200 bps
12	CONNECT 9600	9,600 bps
15	CONNECT 14400	14,400 bps
16	CONNECT 19200	19,200 bps
17	CONNECT 38400	38,400 bps
18	CONNECT 57600	57,600 bps
19	CONNECT 115200	115,200 bps
20	CONNECT 230400	230,400 bps
21	CONNECT 460800	460,800 bps

INFORMATION

● To retain compatibility with a modem connected via conventional RS-232C on PC, communication speed is displayed, but it differs from the actual connection speed because FOMA terminal is connected to the PC with a FOMA USB cable (optional).

Next

■ **Communication protocol result code**

No.	Text display	Meaning
1	PPPoverUD	Connected via 64K data communication
2	AV32K	AV (videophone) connected via [32K]
3	AV64K	AV (videophone) connected via [64K]
5	PACKET	Connected with packet communication

■ **Display example of result codes**

When "ATX 0" is set

Regardless of the settings of the AT¥V command (☛P27), only CONNECT is displayed upon completion of connection.

Text display example:

ATD ＊ 99 ＊＊＊ 3#
CONNECT ("1" in numeric display)

When "ATX 1" is set

- When "ATX1", "AT¥V0" is set (default)

  Upon completion of connection, the result code is displayed in the following format: CONNECT <speed between FOMA terminal - PC>

  Text display example:

  ATD ＊ 99 ＊＊＊ 3#
  CONNECT 460800 ("1 21" in numeric display)

- When "ATX1", "AT¥V1" is set*1

  The code is displayed upon completion of connection as follows:

  Text display example:

  ATD ＊ 99 ＊＊＊ 3#
  CONNECT 460800 PACKET mopera.net/64/384 ("1 21 5" in numeric display)

  Indicates that speed between FOMA terminal and PC is 460,800 bps and the terminal is connected to mopera.net providing a maximum upload speed of 64 kbps and a maximum download speed of 384 kbps.

*1 When "ATX1" and "AT¥V1" are set at the same time, it is likely that dialup connection will fail.
It is recommended that this function be usually set to default, which is "ATX1" or "AT¥V0" be used.